

**Remarks**

Support for the above-requested amendments to claim 17 is found at least on page 5, line 31 to page 6, line 2 and Figures 1-3. Support for the amendments to claims 34 and 42 is found at least on page 3, lines 26-29 and 36-38 and page 6, lines 24-33. Claims 26-28 and 41 have been canceled without prejudice. Claims 1-16 and 29-33 were canceled without prejudice in a previous Amendment. New claim 45 is supported at least by page 3, lines 26-29 and page 6, lines 24-33. Support for new claims 46 and 47 is found at least on page 5, line 31 to page 6, line 2 and Figures 1-3. No question of new matter arises and entry of the above-requested amendments and new claims is respectfully requested.

Claims 17-25, 34-40, and 42-47 are before the Examiner for consideration.

**Formal Matter**

As shown above, Applicant has added new claims 45-47 by amendment (*i.e.*, three claims). Additionally, claims 1-16, 26-29, and 41 (*i.e.*, twenty-one claims) have been canceled without prejudice. Because the total number of claims Applicant is submitting for examination (*i.e.*, twenty-two claims) is not greater than the total number of claims previously presented and paid for (*i.e.*, twenty-three claims), Applicant respectfully submits that no additional filing fees are required for newly added claims 21-27. Furthermore, because support for newly added claims 45-47 is found throughout the specification, as identified in the opening paragraph of the Remarks, Applicant respectfully submits that these newly added claims do not contain any new matter.

**Rejection under 35 U.S.C. §§102(b)/103(a)**

Claims 17-24 have been rejected under 35 U.S.C. §102(b) as being anticipated by, or, in the alternative, under 35 U.S.C. §103(a) as being obvious over U.S. Patent Publication No. 2001/0032696 to Debalme, *et al.* (“Debalme”). The Examiner asserts that Debalme teaches a method of making a composite product that includes reinforcing fibers and thermoplastic organic fibers. It is asserted that the composite product is made by depositing at least 80% by weight of commingled yarns of blended glass fibers and thermoplastic fibers. The Examiner also asserts that the yarns may be in the form of continuous filaments forming superposed loops or chopped fibers. Additionally, it is asserted that the chopped fibers may have a length of 38 mm. Further, the Examiner asserts that the yarns of reinforcing fibers and thermoplastic fibers are bonded together by heat and compression.

The Examiner admits that Debalme does not teach the claimed elongation at break or porosity. However, the Examiner asserts that it is reasonable to presume that these properties are inherent because Debalme uses similar materials and similar production steps.

**Applicant's Response**

In response, Applicant respectfully directs the Examiner's attention to independent claim 17 and submits that claim 17, as amended, defines a deformable mat that is not taught or suggested by Debalme. Additionally, Applicant respectfully submits that Debalme does not teach or suggest the combination of features recited in claim 17.

Applicant submits that there is no teaching or suggestion within Debalme of a deformable mat that includes at least one reinforcing substance and at least one thermoplastic substance where these substances are in a form of a member selected from at least one continuous yarn, chopped yarns and combinations thereof and where the mat is in an uncompressed state. Debalme teaches a composite product obtained by a process that consists of (1) depositing glass threads, of which at least 80% by weight thereof are commingled threads, (2) transferring the glass threads and organic material through a number of zones where the glass threads and the organic material are heated and/or cooled with compression, and (3) cutting or winding the sheets. (*See, e.g.*, paragraphs [0012]-[0015]). In one or more examples, the composite product contains at least one strip of fabric. (*See, e.g.*, paragraph [0020]).

In contrast, the claimed mat is in an uncompressed state. As discussed at least in the paragraph bridging pages 5 and 6 of the instant application, the inventive mat is formed by depositing continuous and/or chopped yarns and a thermoplastic substance on a moving substrate to form a web, subjecting the web to a bonding treatment to bond the yarns together to form a deformable mat, and collecting the mat. The mat, having not been compressed during or after its formation, remains, therefore, in an uncompressed state. Debalme, however, does not teach or suggest a mat in an uncompressed state as required by claim 17. Indeed, Debalme specifically teaches compressing the formed mat while heating and/or cooling the mat. (*See, e.g.*, paragraphs [0012]-[0015]). Applicant submits that Debalme is silent regarding any teaching or suggestion of a deformable mat in an uncompressed state. There is simply no teaching or even a suggestion within Debalme of an uncompressed mat. Moreover, it is respectfully submitted that the required compression of the mat of Debalme teaches away from the claimed, uncompressed deformable mat. Accordingly, Applicant submits that claim 17 is non-obvious and patentable.

In addition, Applicant submits that there is no motivation for one of skill in the art to arrive at a deformable mat as claimed in claim 17 based on the disclosure of Debalme. In order to establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings, and the prior art reference (or references when combined) must teach or suggest all the claim limitations. (See, e.g., *Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 7, August 2008, §2143 citing *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007)).

Applicant respectfully submits that one of ordinary skill in the art would have no motivation to arrive at a deformable mat that includes at least one reinforcing substance and at least one thermoplastic substance, these substances being in the form of at least one continuous yarn and/or chopped yarns, where the mat is in an uncompressed state based on the disclosure of Debalme at least because Debalme does not teach or even suggest a deformable mat in an uncompressed state. Without some teaching or suggestion, there can be no motivation, and without motivation, there can be no *prima facie* case of obviousness.

Further, Applicant submits that because Debalme does not teach or suggest a deformable mat in an uncompressed state, Debalme fails to teach all of the claim limitations set forth in claim 17. Accordingly, it is submitted that a *prima facie* case of obviousness has not been established for this additional reason.

With respect to claims 18-24, Applicant submits that because independent claim 17 is not taught or suggested by Debalme and claims 18-24 are dependent upon claim 17 and contain the same elements as claim 17, dependent 18-24 are also not taught or suggested by Debalme.

Additionally, Applicant respectfully submits that there is no teaching or suggestion within Debalme of a mat that possesses sufficient flexibility to be deposited inside a mold without forming pleats. In the instant invention, the treatment used for bonding is a “light” bonding, *i.e.*, a bonding that avoids giving the mat an excessive amount of cohesion so that the mat exhibits an intended deformability. (See, e.g., page 6, lines 24-33 of the instant application). On the other hand, Debalme teaches that the composite product, after being heated, compressed, and cooled, is a rigid product, such as a rigid strip or sheet. (See, e.g., paragraphs [0068], [0072], and [0082]). It is respectfully submitted that a rigid composite product does not possess sufficient flexibility or deformability to be deposited into a mold

without forming pleats as is required by new claim 45. Therefore, Applicant respectfully submits that newly added claim 45 is separately non-obvious and patentable over Debalme.

In light of the above, Applicant submits that claims 17-25 (and 45) are not anticipated by, or obvious over Debalme and respectfully requests that this rejection be reconsidered and withdrawn.

**Rejection Under 35 U.S.C. §103(a)**

Claim 25 has been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2001/0032696 to Debalme, *et al.* (“Debalme”). The Examiner admits that Debalme fails to teach the claimed basis weight. However, the Examiner asserts that it would have been obvious to one of skill in the art to arrive at a basis weight of at least 700 g/m<sup>2</sup> since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering optimum or workable ranges involves only routine skill in the art.

**Applicant’s Response**

In response to this rejection, Applicant respectfully directs the Examiner’s attention to the arguments presented above with respect to the rejection of claims 17-24 under 35 U.S.C. §102(b) as being anticipated by, or, in the alternative, under 35 U.S.C. §103(a) as being obvious over U.S. Patent Publication No. 2001/0032696 to Debalme, *et al.* (“Debalme”) and submits that claim 17 defines a deformable mat that is not taught or suggested by Debalme. As discussed in detail above, Debalme does not teach or suggest a deformable mat that includes at least one reinforcing substance and at least one thermoplastic substance where these substances are in a form of a member selected from at least one continuous yarn, chopped yarns and combinations thereof and where the mat is in an uncompressed state. Indeed, Debalme clearly teaches compressing the mat while heating and/or cooling the mat. (*See, e.g.*, paragraphs [0012]-[0015]). Applicant respectfully submits that the compressed mat of Debalme is the opposite of the claimed, uncompressed mat. As such, it is respectfully submitted that Debalme teaches away from the claimed deformable mat. Accordingly, Applicant submits that claim 17 is non-obvious and patentable.

In addition, Applicant submits that the Examiner has failed to establish a proper *prima facie* case of obviousness. It is respectfully submitted that there is no motivation for one of skill in the art to arrive at a deformable mat as claimed in claim 17 based on the disclosure of Debalme at least because Debalme does not teach or even suggest a deformable mat in an

uncompressed state.<sup>1</sup> Without some teaching or suggestion, there can be no motivation, and without motivation, there can be no *prima facie* case of obviousness. Additionally, Applicant submits that because Debalme does not teach or suggest a deformable mat in an uncompressed state, Debalme fails to teach all of the claim limitations set forth in claim 17. Accordingly, it is submitted that a *prima facie* case of obviousness has not been established for this additional reason.

It is respectfully submitted that because claim 25 is dependent upon claim 17, which, as discussed in detail above, is non-obvious and patentable over Debalme, Applicant submits that claim 25 is also non-obvious and patentable.

### **Rejection Under 35 U.S.C. §103(a)**

Claims 34-44 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2001/0032696 to Debalme, *et al.* ("Debalme"). The Examiner admits that Debalme fails to teach stitch bonding the web to bind the mat. However, the Examiner asserts that stitch bonding the mat would have been readily obvious to a skilled artisan. The Examiner asserts that stitch bonding is a well known method of integrating a web to enhance the mat's dimensional stability. In addition, the Examiner concludes that it would have been obvious to one of skill in the art to employ a binder yarn finer than the yarns of the mat in order to minimize the bulkiness of the stitch bonding and to enable a finer stitch density which would further enhance the dimensional stability. With respect to claims 38 and 41, the Examiner states that discovering an optimum value of a result effective variable involves only routine skill in the art. Further, regarding the claimed elongation at break and porosity, the Examiner asserts that it is reasonable to presume that these properties are inherent because Debalme uses similar materials and similar production steps.

### **Applicant's Response**

Initially, Applicant submits that claim 41 has been canceled without prejudice, thereby rendering the rejection of this claim moot.

In response to the rejection of the remaining claims, Applicant respectfully directs the Examiner's attention to independent claims 34 and 42 and submits that claims 34 and 42, as

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<sup>1</sup> In order to establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings, and the prior art reference (or references when combined) must teach or suggest all the claim limitations. (See, e.g., *Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 7, August 2008, §2143 citing *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007)).

amended, define deformable mats that are not taught or suggested by Debalme. Additionally, Applicant respectfully submits that Debalme does not teach or suggest the combination of features recited in claims 34 and 42.

In the outstanding Office Action, the Examiner asserts that stitch bonding is a well known method of integrating a web to enhance the mat's dimensional stability, and gives Applicant Official Notice of this fact. (See page 5, lines 1-4 of the Office Action dated July 27, 2009). Applicant respectfully submits that the Examiner is improperly relying on "common knowledge" as the primary basis for this rejection. As discussed in the *Manual of Patent Examining Procedure*, "[i]t is never appropriate to rely solely on 'common knowledge' in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based". (See, e.g., *Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 7, August 2008, §2144.03 citing *In re Zurko*, 258 F.3d 1379, 1385, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001)). It is respectfully submitted that the Examiner has impermissibly based his rejection of claims 34-44 on the assumption that stitch bonding is "well known". Indeed, Applicant submits that stitch bonding a mat in order to achieve both a desired deformability for use in a molding process and a porosity between 65 to 85% is not well known. As discussed in the specification, the inventive mat has a density that is between stitch bonded yarns and nonwovens. (See, e.g., page 3, lines 31-38). Accordingly, Applicant respectfully requests that the Examiner provide documentary evidence in support of his assertion in the next Office Action.

Notwithstanding the above, Applicant submits that Debalme does not teach or suggest a deformable mat that includes at least one reinforcement substance and at least one thermoplastic substance in the form of yarns where the yarns are stitch bonded by a binding thread, where the mat possesses sufficient flexibility to be deposited inside a mold without forming pleats, and where the mat has a porosity ranging from 65 to 80% as required by claims 34 and 42. As discussed in the present application, the inventive mat is characterized in one aspect by the fact that the mat is relatively dense. (See, e.g., page 3, lines 31-32 of the instant application). Specifically, the mat has a density that is between structures consisting of organized yarns (e.g., wovens and structures bonded by stitch bonding or thermal bonding) and nonwovens. (See, e.g., page 3, lines 32-36 of the instant application). Applicant has defined this dense nature of the mat by its porosity, which is from 65 to 80%. (See, e.g., page 3, lines 36-38 of the instant application).

Applicant respectfully submits that merely stitch bonding the mat would not result in the deformable mats claimed in claims 34 and 42. In the instant invention, the yarns are “lightly” bonded to avoid giving the final mat an excessive amount of cohesion, as the latter no longer has the flexibility required to align with the interior of a complex mold without forming pleats. (*See, e.g.*, page 3, lines 26-29 and page 6, lines 24-31 of the instant application). The treatment conditions are therefore tailored so that the mat exhibits the desired deformability, *i.e.*, to be deposited inside a mold without forming pleats. (*See, e.g.*, page 3, lines 26-29 and page 6, lines 31-33 of the instant application). Assuming, *arguendo*, that stitch bonding is well known as asserted by the Examiner and one of skill in the art were to stitch bond the claimed yarns, Applicant submits that the stitch bonding would result in a mat that does not have the desired, claimed deformability and porosity. It is only through the impermissible use of hindsight that one of skill would affect a stitch bonding technique tailored to arrive at a mat that has a porosity between 65 and 80% and the ability to be deposited inside a mold without forming pleats.

Debalme simply does not teach or suggest a deformable mat that includes at least one reinforcement substance in the form of a yarn, and at least one thermoplastic substance in the form of a yarn where the yarns are stitch bonded, where the mat possesses sufficient flexibility to be deposited inside a mold without forming pleats, and where mat has a porosity ranging from 65 to 80%. Applicant respectfully submits that a mere teaching of stitch bonding, as suggested by the Examiner, would not add to the teachings of Debalme to result in the claimed deformable mats. Accordingly, Applicant submits that one of ordinary skill in the art would have no motivation to arrive at the deformable mats claimed in claims 34 and 42 based on the teachings of Debalme. Without some teaching or suggestion, there can be no motivation, and without motivation, there can be no *prima facie* case of obviousness.<sup>2</sup>

Further, Applicant submits that because Debalme does not teach or suggest a mat that includes at least one reinforcement substance in the form of a yarn and at least one thermoplastic substance in the form of a yarn where the yarns are stitch bonded, where the mat possesses sufficient flexibility to be deposited inside a mold without forming pleats, and where mat has a porosity ranging from 65 to 80%, Debalme fails to teach all of the claim limitations set forth in claims 34 and 42. Accordingly, it is submitted that a *prima facie* case of obviousness has not been established for this additional reason.

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<sup>2</sup> *Id.*

In view of the above, it is respectfully submitted that independent claims 34 and 42 are not taught or suggested by Debalme and that claims 34 and 42 are therefore non-obvious and patentable. With respect to dependent claims 35-40 and 43-44, Applicant submits that because independent claims 34 and 42 are not taught or suggested by Debalme and claims 35-40 and 43-44 are dependent upon claim 34 or claim 42 and contain the same elements as the claim from which they depend, dependent claims 35-40 and 43-44 are also not taught or suggested by Debalme.

In light of the above, Applicant submits that claims 34-40 and 42-44 are not obvious over Debalme and respectfully request that this rejection be reconsidered and withdrawn.

### **Conclusion**

In light of the above, Applicant believes that this application is now in condition for allowance and therefore requests favorable consideration.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

If necessary, the Commissioner is hereby authorized to charge payment or credit any overpayment to Deposit Account No. 50-0568 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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